

**Third Semester FYUGP Degree (Reg) Examination November
2025**

KU3DSCSTA222 - STATISTICAL INFERENCE

2024 Admission onwards

Time : 1.5 hours

Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. What are the limitations of sampling?
2. Define population and sample.
3. If two samples of size 9 and 11 have means 6.8 and 6.86 and variances 36 and 25 respectively from two normal populations $N(\mu_1, \sigma^2)$ and $N(\mu_2, \sigma^2)$. Write the degrees of freedom of statistic t for testing $H_0 : \mu_1 = \mu_2$.
4. A random sample of 10 mill workers at Kannur showed their mean wages to be Rs.3500 per week with a standard deviation of Rs.280. A sample of 15 mill workers in Kasaragod showed mean wage to be Rs.3900 per week with a standard deviation of Rs.400. On the basis of the data we want to say the mean wages of mill workers in Kasaragod are higher than those at Kannur. Write the null and alternative hypothesis. Write the formula for test statistic.
5. Define standard error. What is the standard error of sample mean?
6. Define sampling distribution. What is the distribution of square of a standard normal Distribution?
7. Define point estimation.
8. Give an example for each simple and composite hypothesis.

Section B

Answer any 4 questions. Each carry 6 marks.

9. What are the properties of chi-square distribution? What are the applications of chi-square distribution in testing of hypothesis?
10. Define chi-square, t and F distributions.
11. Write short notes on the following: (i) Parameter (ii) Statistic (iii) Sampling distribution and (iv) Standard error.
12. Differentiate between point estimation and interval estimation.

13. Distinguish between one-tailed tests and two-tailed tests with examples.
14. Describe the following:
(a) Type I error (b) Type II error (c) Significance level and (d) Power of the test.

Section C

Answer any 1 questions. Each carry 14 marks.

15. Compare census and sampling methods. Also describe different types of sampling designs.
16. By using chi-square test for the following data.

Income	Unaided Schools	Govt Schools	Total
Low	200	400	600
High	1000	400	1400

find out whether there is any association between income level and type of schooling.